LETTERS TO THE EDITOR

Axillary artery cannulation

To the Editor:

We read with interest the recent article by Neri and associates[1] concerning the use of axillary artery cannulation in patients with type A aortic dissection. They used axillary artery cannulation in 22 of 152 (14%) operations for aortic dissection over a 9-year period. The primary indication for axillary artery cannulation was inability to establish safe perfusion via the femoral artery. The technique was successful in all patients, and the authors conclude that the axillary artery is a safe alternate site for arterial perfusion in patients with type A dissection.

We agree that the axillary artery provides excellent arterial access for cardiopulmonary bypass, and we would like to offer a few comments concerning our indications for axillary artery cannulation and the surgical technique. Since 1991, we have used axillary artery perfusion in more than 100 patients. Our indications for axillary artery cannulation are broad and include ascending aortic aneurysm, ascending aortic dissection, and severe ascending aortic atherosclerosis. In fact, the axillary artery is our site of choice for arterial perfusion in patients with type A dissection; the dissection rarely extends into the axillary artery.[2] Similarly, in patients with ascending aortic atherosclerosis, the axillary artery is usually spared from the disease process; furthermore, axillary artery perfusion in such patients reduces the risk of atheroembolism, which may occur with retrograde perfusion via the femoral artery. Contraindications to axillary artery cannulation include extension of the aortic disease process into the artery and known axillary/subclavian stenosis. In addition, morbid obesity is a relative contraindication, as exposure of the artery in such patients can be difficult. Operations performed with the use of axillary artery cannulation include ascending aortic replacement, valve repair and replacement, and coronary artery bypass grafting.

Our surgical technique has evolved and differs somewhat from that of the authors. As previously reported,[3] we most frequently use the right axillary artery. We have not encountered problems with malperfusion via this vessel. Although we initially cannulated the artery directly, we now prefer to sew an 8-mm Dacron graft to the vessel and then cannulate the graft with a 20F cannula. The axillary artery is frequently fragile, and this technique avoids the trauma of direct cannulation. In addition, this technique allows perfusion of the arm during cardiopulmonary bypass and facilitates decannulation, which is accomplished simply by transecting the graft and oversewing the short stump.[4] Adequacy of perfusion is confirmed by transesophageal echocardiography and measurement of blood pressure in both radial arteries.

In our practice, the axillary artery has replaced the femoral artery as the preferred alternate site for cannulation in patients with ascending aortic disease. Arterial inflow via a Dacron graft provides advantages over direct cannulation of the axillary artery.

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Axillary cannulation: First choice for extra-aortic cannulation and brain protection

To the Editor:

We read with interest the article by Neri and colleagues[1] about axillary cannulation for type A dissection. They relate a lateral approach, preferentially left, with direct cannulation with excellent results: there were no strokes and no local complications from the cannulation site in 22 patients with type A aortic dissection.

This is the first publication in which direct cannulation of the lateral segment of the artery is used without injury to the artery or the surrounding nerve roots, at least in the initial follow-up. Our experience with axillary cannulation for severe aortic atherosclerosis was recently published,[2] and we differ in opinion with the authors in a few points.

First, we prefer a more medial approach to cannulate the axillary artery, thus avoiding the surrounding brachial plexus roots. Second, use of a graft interposition technique allows us to monitor brain perfusion during circulatory arrest through the same graft by reading the ipsilateral right radial artery pressure. To that effect we caution that monitoring of the systemic pressure during total perfusion should be from a contralateral or proximal site from the axillary cannulation site since the ipsilateral radial line usually will read a higher pressure from the significant flow. This is with the interposition technique; obviously, direct cannulation will probably give